Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Canceled)

3. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:

computing a photo sharpness figure of merit for the captured image; and

comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, ~~The method of claim 2 wherein~~ the computing step ~~comprises~~ further comprising:

generating a line pixel profile of the captured image;

computing an absolute difference in a channel gray level between adjacent pixels in the horizontal direction using said line pixel profile; and

picking the maximum absolute difference as the photo sharpness figure

of merit.

4. (Original) The method of claim 3 further comprising:

transforming the captured image from RGB color space into YCrCb color space.

5. (Original) The method of claim 3 further comprising:

transforming the captured image from RGB color space into L*a*b color space

6. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:

computing a photo sharpness figure of merit for the captured image; and

comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, ~~The method of claim 2 wherein~~ the computing step ~~comprises~~ further comprising:

generating a line pixel profile of the captured image;

computing the absolute difference in a channel gray level between adjacent pixels in the horizontal direction using said line pixel profile, said computed absolute difference constituting a plurality of data points;

ranking said data points in value;

dropping at least a top 1% of said ranked data points from consideration; and

picking a next top-valued data point as the photo sharpness figure of merit.

7. (Original) The method of claim 6 further comprising:

transforming the captured image from RGB color space into YCrCb color space.

8. (Original) The method of claim 6 further comprising:

transforming the captured image from RGB color space into L*a*b color space.

9. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:

computing a photo sharpness figure of merit for the captured image; and

comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, ~~The method of claim 2 wherein~~ the computing step ~~comprises~~ further comprising:

computing a magnitude of a two-dimensional gradient of a channel; and

picking a maximum two-dimensional gradient magnitude as the photo sharpness figure of merit.

10. (Original) The method of claim 9 further comprising:

transforming the captured image from RGB color space into YCrCb color space.

11. (Original) The method of claim 9 further comprising:

transforming the captured image from RGB color space into L*a*b color space..

12. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:

computing a photo sharpness figure of merit for the captured image; and

comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, ~~The method of claim 2 wherein~~ the computing step ~~comprises~~ further comprising:

computing a magnitude of a two-dimensional gradient of a channel, said computed two-dimensional gradient magnitude constituting a plurality of data points;

ranking said data points in value;

dropping at least a top 1% of said ranked data points from consideration; and

picking a next top-valued data point as the photo sharpness figure of merit.

13. (Original) The method of claim 12 further comprising:

transforming the captured image from RGB color space into YCrCb color space

14. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user ~~The method of claim 1~~ wherein said checking step further comprises:

computing a face quality figure of merit for the captured image; and

comparing said computed face quality figure of merit to a threshold to determine if said face quality figure of merit exceeds said threshold.

15. (Original) The method of claim 14 wherein the computing step comprises:

detecting facial image data from the captured image; and

converting said detected facial image data from RGB color space into L*a*b color space.

16. (Original) The method of claim 15 further comprising:

computing the mean of L* to obtain a brightness figure of merit.

determining if said brightness figure of merit falls within a brightness threshold range

17. (Original) The method of claim 15 further comprising:

computing the local standard deviation of L* to obtain a noise figure of merit; and

determining if said noise figure of merit exceeds a noise threshold.

18. (Original) The method of claim 15 further comprising:

computing the overall standard deviation of L* to obtain a contrast figure of merit; and

determining if said contrast figure of merit falls within a contrast threshold range.

19. (Original) The method of claim 14 wherein the computing step comprises:

detecting facial image data from the captured image; and

converting said detected facial image data into a binary mask of only white and black pixels, wherein said white pixels represent pixels of red color and said black pixels represent pixels of colors other than red; and

checking said binary mask for presence of white pixels.

20 (Canceled)

21. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:

checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and

providing a corresponding photo quality feedback to a camera user, said checking step further comprising:

computing a flare figure of merit for the captured image;

comparing said computed flare figure of merit to a threshold to determine if said flare figure or merit exceeds said threshold; and

providing a corresponding flare feedback to said camera user ~~The method of claim 20~~ wherein the computing step comprises:

generating a binary mapping of the captured image containing only black and white pixels, said white pixels representing saturated pixels of the captured image; and

subdividing said binary mapping into a plurality of regions.

22. (Original) The method of claim 21 further comprising:

computing a percentage of white pixels in each region to obtain a flare figure of merit; and

determining if said flare figure of merit in at least one region exceeds a flare threshold.

23. (Original) The method of claim 22 wherein said flare threshold is at least 50%.

24. (Original) A method for assessing the photo quality of a captured image in a digital camera, said method comprising the steps of:

computing, in-camera, a photo sharpness figure of merit for the captured image;

comparing, in-camera, said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure or merit exceeds said threshold;

providing a corresponding photo sharpness feedback to a camera user'

computing, in-camera, a face quality figure of merit for the captured image;

comparing, in-camera, said computed face quality figure of merit to a threshold to determine if said face quality figure of merit exceeds said threshold;

providing a corresponding face quality feedback to said camera user;

computing, in-camera, a flare figure of merit for the captured image;

comparing, in-camera, said computed flare figure of merit to a threshold to determine if said flare figure of merit exceeds said threshold; and

providing a corresponding flare feedback to said camera user.

25. (Canceled)

26. (Currently Amended) A system for assessing the photo quality of a captured image in a digital camera, said system comprising:

an image capture unit;

an image processor operatively coupled to said image capture unit for processing the captured image;

a photo quality check unit operatively coupled to said image processor for checking,

in-camera, the photo quality of the processed image; and

a display operatively coupled to said photo quality check unit for providing a corresponding photo quality feedback to a camera user ~~The method of claim 25~~, wherein said photo quality check unit comprises:

a photo sharpness check module operatively coupled between said image processor and said display for checking in-camera the photo sharpness of the processed image;

a face quality check module operatively couple between said image processor and said display for checking in-camera the face quality of the processed image; and

a flare check module operatively coupled between said image processor and said display for checking in-camera the processed image for presence of flare.

the photo sharpness figure of merit exceeds the threshold. The computing step further comprises: generating a line pixel profile of the captured image, computing an absolute difference in a channel gray level between adjacent pixels in the horizontal direction using the line pixel profile and picking the maximum absolute difference as the photo sharpness figure of merit.

In rejecting claim 3, the Office Action of February 2, 2004 relies upon Desormeaux (Figs. 2, 24 and 27) for allegedly disclosing generating a line pixel profile of a captured image. The description of Figure 24 (col. 24, l. 48 to col. 26, l. 53), however, fails to disclose Applicants' invention as claimed. As described in Desormeaux, a captured image is subdivided into an array of paxels; each paxel is defined as a block of pixels. The description of Figure 27 is directed to shifting areas within images. Desormeaux fails to teach generating a line pixel profile of a captured image as claimed.

In addition, Desormeaux (col. 15, lines 5-15 and col. 31, lines 15+) is relied upon for disclosing computing an absolute difference in a channel gray level between adjacent pixels in the horizontal direction using the line pixel profile. As described, Desormeaux performs paxel (as opposed to pixel) analysis. At least for these reasons, it is respectfully submitted that claim 3 is not anticipated by Desormeaux and is allowable.

Claims 4 and 5 which depend on allowable claim 3 and cite additional features are also allowable.

Claim 6 has been amended into an independent form in order to place it in a condition for allowance; claims 7 and 8 are allowable as they depend on claim 6.

In rejecting claim 9, the Office Action relies upon Desormeaux (Fig. 39-42; col. 14, lines 40+ and col. 35, l. 40 to col. 36, lines 5+) for computing a magnitude of two-

dimensional gradient of a channel and picking a maximum two-dimensional gradient magnitude as the photo sharpness figure of merit. It is not clear how the cited portions describe the invention as recited by the language of claim 9. Desormeaux appears to describe the use of light metering methods to determine illumination intensity. Light meters are typically used in film cameras. Accordingly, claim 9 is allowable over the teachings of Desormeaux as it is not anticipated by Desormeaux.

Claims 10 and 11 which depend on allowable claim 9 and cite additional features are also allowable.

Claims 12 been amended into an independent form in order to place it in a condition for allowance; claim 13 is allowable as it depends on claim 12.

As for claim 14, the Office Action recognizes that Desormeaux fails to teach computing a face quality figure of merit for a captured image. The teachings of Luo are relied upon for overcoming this deficiency. As described in the Specification (¶0088 - ¶0089), the method of Applicant's invention computes brightness, noise level, contrast and presence or absence of red eye in determining the face quality using segments associated with skin color. Luo discloses the determination of eye location and correcting eye defects such as red eye. Luo fails to disclose computation of brightness, noise level and contrast as well as the use of segments associated with skin color. At least for these reasons, it is respectfully submitted that claim 14 is allowable over the Desormeaux/Luo combination.

Not Claim

Claims 15 to 19 which depend on allowable claim 14 and cite additional features are also allowable.

In rejecting claim 21, Desormeaux (Figure 1, 2 and 24) was relied upon for allegedly disclosing generating a binary mapping of the captured image containing only black and

white pixels with the white pixels representing saturated pixels of the captured image and subdividing the binary mapping into a plurality of regions.

It is not clear how the description of Figure 24 (col. 24, l. 48 to col. 26, l. 5) corresponds to amended claim 21. There is no teaching of binary mapping of the captured image containing only black and white pixels. At least for these reasons, it is respectfully submitted that claim 21 is allowable over Desormeaux.

Claims 22 and 23 which depend on allowable claim 21 and cite additional features are also allowable.

The rejection of claims 24 and 26 relies upon the Desormeaux/Luo combination. The deficiencies of this combination, i.e., failing to disclose a face quality measure in the manner described, have been highlighted above with reference to claim 14. For similar reasons, it is respectfully submitted that claims 24 are 26 are allowable.

All of the rejections having been overcome, it is respectfully submitted that this application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions with respect to expediting the prosecution of this application, he is urged to contact the undersigned at the number listed below.

Respectfully submitted,

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